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# NASA Procedural Requirements

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(NASA Only)

## Subject: Managing Information Technology

Responsible Office: Office of the Chief Information Officer

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## Appendix A: Definitions

**Acquisition** — The process for obtaining the systems, research, services, construction, and supplies that NASA needs to fulfill its mission.

**Agency-Level Procurement** — Procurement actions that meet the criteria of NASA FAR Supplement 1807.7101 and are listed under the Agency's Master Buy Plan.

**Application** — The use of information resources (information and information technology) to satisfy a specific set of user requirements (reference OMB A-130). Also, a set of computer commands, instructions, and procedures used to cause a computer to process a specific set of information. Applications software does not include operating systems, generic utilities, or similar software that are normally referred to as "system software."

**Approval** — The acknowledgement by the responsible official that the program/project has met expectations and formulation requirements and is ready to proceed to implementation.

**Architecture** — The structure of components, their interrelationships, and the principles and guidelines governing their design and evolution over time.

**Business Architecture** — Defines what, where, and by whom the work of the Agency is performed. As the knowledge base for the EA, the Business Architecture provides a business-driven approach for determining the proper information, applications, and IT required by the enterprise.

**Component Facilities** — Complexes that are geographically separated from the NASA

Center or institution to which they are assigned.

**Concurrence** — The individual(s) reviewing and providing agreement within their span of responsibility of a document, product, or service that has yet to be approved.

**Contract** — A mutually binding legal relationship obligating the seller to furnish the supplies or services (including construction) and the buyer to pay for them. In addition to bilateral instruments, contracts include, but are not limited to: awards and notices of awards; job orders or task letters initiated under basic ordering agreements; letter contracts; orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance; and bilateral contract modifications.

**Customer** — Any individual, organization, or other entity to which a program or project provides a product(s) and/or service(s).

**Data Architecture** — Provides an understanding of what information is needed to effectively execute the enterprise's business processes and provides a framework for effectively managing the enterprise's information environment. Data Architecture links information behavior (i.e., accessing, using, and sharing data), information management processes, and information support staff to other aspects of the enterprise.

**Enterprise** — An organization or cross-organizational entity supporting a defined business scope and mission. An enterprise includes interdependent resources (i.e., people, organizations, and IT) that shall coordinate their functions and share information in support of a common mission or set of related missions.

**Enterprise Architecture** — An explicit description and documentation of the current and desired relationships among business and management processes and information technology. An EA includes principles, an architecture framework, a technical standards profile, current and target architectures, and a transition strategy to move from the current to target architecture (reference NPR 7120.5, NASA Space Flight Program and Project Management Requirements).

**Governance** — Leadership and organizational structures and processes that ensure that the organization's IT sustains and extends the organization's strategies and objectives (reference IT Governance Institute).

**Highly Specialized Information Technology** — Highly Specialized IT is a part of, internal to, or embedded in a mission platform. The platform's function (e.g., avionics, guidance, navigation, flight controls, simulation, radar, etc.) is enabled by IT but not driven by IT itself (e.g., computer hardware and software to automate internal functions of a spacecraft or spacecraft support system such as spacecraft control and status, sensor signal and data processing, and operational tasking.) Highly Specialized IT acquisitions may include full development (where the information technology is a primary issue) to modification of existing systems (information architecture is firm and demonstrated in an operational environment) where information technology is not an issue. Real time is often critical — and few opportunities exist to use Commercial Off The Shelf (COTS) or Government Off The Shelf (GOTS) beyond microprocessors and operating systems because these systems are largely unprecedented or largely unique applications. Certain IT considered Mission Critical because the loss of which would cause the stoppage of mission operations supporting real—time on—orbit mission operations is identified as "Highly Specialized" by the Directorate Associate Administrator. Highly Specialized IT is largely custom, as opposed to COTS or commodity IT systems or applications, and includes coding/applications that are integral

parts of the research or science requirements, e.g., Shuttle Avionics Upgrade. Common engineering IT tools such as Product Life cycle Management (PLM) systems, Computer-Aided Design (CAD) systems, and collaborative engineering systems and environments are not Highly Specialized IT.

Representative Examples of Highly Specialized IT include: Avionics software, real-time control systems, onboard processors, Deep Space Network, spacecraft instrumentation software, wind tunnel control system, human physiology monitoring systems, ground support environment, experiment simulators, Mission Control Center and Launch cameras.

**Information Technology (IT)** — Any equipment or interconnected system(s) or subsystem(s) of equipment that is used in the automatic acquisition, storage, analysis, evaluation, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the Agency (reference FAR 2.101).

**IT Infrastructure** — Hardware, software, and processes that together deliver fundamental IT capabilities in support of NASA users, application systems, and data.

**Investment** — Resources, usually funding, along with a decision on how to apply those resources that results in a capability, product or service that helps NASA achieve its Mission. Generally, the benefits of an investment exceed the cost of the investment.

**Mission Directorate** — Primary implementer of a NASA mission area. Each Mission Directorate is led by an Associate Administrator who leads their respective mission area. Listed in the order they appear on the NASA organizational chart, the current Mission Directorates are as follows: Aeronautics Research Mission Directorate, Exploration Systems Mission Directorate, Science Mission Directorate, and Space Operations Mission Directorate.

**Mission Support Office** — Headquarters organizations that establish and disseminate policy and leadership strategies within assigned areas of responsibility in support of all NASA programs and activities. Refer to NPD 1000.3, The NASA Organization, for the list of offices included in this designation. As used in this document, the term refers to any Headquarters nonMission Directorate office that initiates a program or project.

**Program** — Strategic investment by a Mission Directorate or Mission Support Office that has a defined architecture and/or technical approach, requirements, funding level, and a management structure that initiates and directs one or more projects. A program defines a strategic direction that the Agency has identified as critical.

**Project** — Specific investment having defined requirements, a life-cycle cost, a beginning, and an end. A project yields new or revised products that directly address NASA's strategic needs.

**Segment Architecture** — An integral component of the Agency Enterprise Architecture, a Segment Architecture provides a more focused and more detailed examination of a portion of the Agency mission. A Segment Architecture answers the question, "How does a given investment support or contribute to mission performance?" To answer this question, a Segment Architecture must identify and describe either a line of business or primary activity in context, showing as many relationships, dependencies, roles and performance measures as necessary to accurately characterize all investments. A Segment must maintain a clear line of sight between segment activities, other segments,

and organization goals. Current and target states must be represented, in order that a gap analysis can be performed, and a transition strategy developed.

**System** — Combination of elements that function together to produce the capability required to meet a need. The elements include all hardware, software, equipment, facilities, personnel, processes, and procedures needed for this purpose.

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